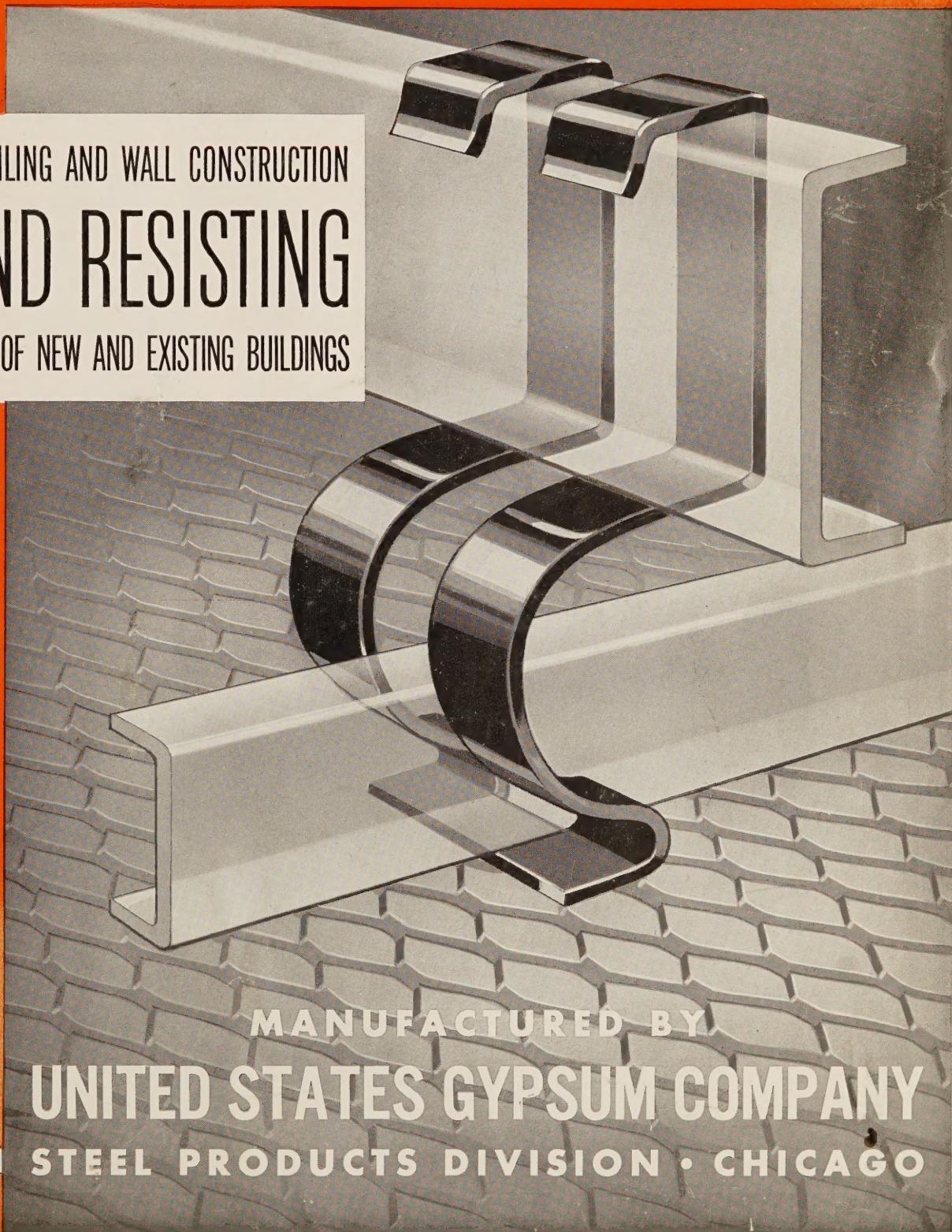


# RED TOP METAL LATH RESILIENT SYSTEM

A FLOATING CEILING AND WALL CONSTRUCTION

..SOUND RESISTING

FOR ALL TYPES OF NEW AND EXISTING BUILDINGS



**USG**  
STEEL PRODUCTS

MANUFACTURED BY  
**UNITED STATES GYPSUM COMPANY**  
STEEL PRODUCTS DIVISION • CHICAGO

# A FIREPROOF PLASTERING SYSTEM DESIGNED TO REDUCE TRANSMISSION OF SOUND AND PROVIDE MAXIMUM PROTECTION AGAINST CRACKS

■ The Red Top Metal Lath Resilient System is an important development in metal lath plastering construction. The system, by the use of spring clips, provides a practical method for resiliently attaching and furring metal lath in virtually all types of work. The resilient attachment provides a cushioning effect for the plaster finish which results in such important advantages as: 1—Insulation against transmission of sound from one room to another; 2—Maximum protection against cracks; 3—Elimination of lath or joist streaks and discoloration from treated lumber, etc.

The system employs standard metal lath construction and is attached to supports on the resilient spring clip provided by the system. It is applied by the lather.

For use in the Red Top Metal Lath Resilient System, five different types of clips and a special steel channel stud and seat are available. The five clips make possible the application of the system to practically all types of residential and commercial buildings. On pages 4 and 5 illustrations of the steel products used in the system and illustrations of typical installations are shown.

## REDUCES TRANSMISSION OF SOUND

One of the outstanding features of the Red Top Metal Lath Resilient System is that it provides a much superior

sound reduction value than ordinary types of plastering construction. When properly installed, the system will function practically as efficiently as other more costly methods of sound insulation.

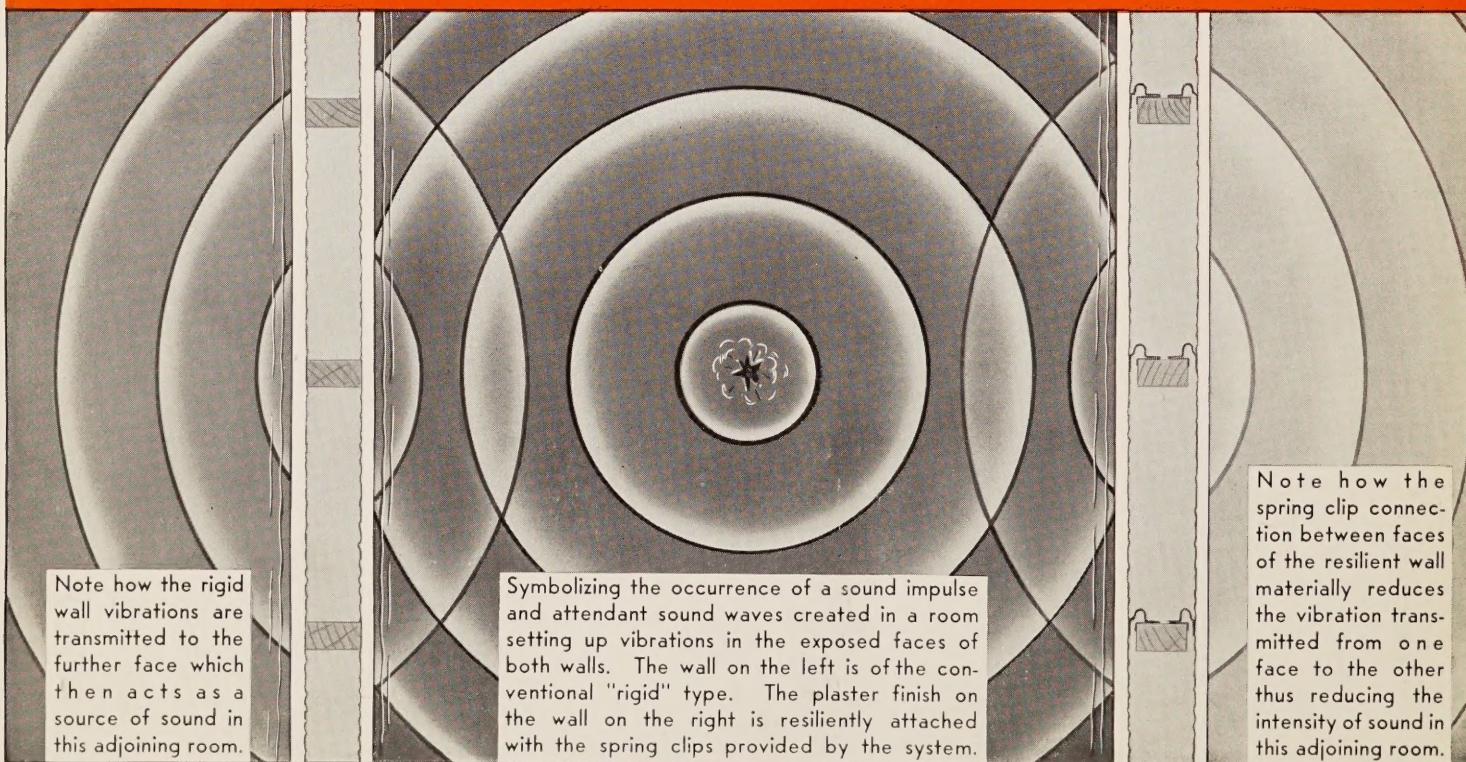
The sound reduction provided by the system is approximately the same as a double three-inch tile wall construction having a two-inch air space.

The diagram below illustrates the comparative effect of sound waves striking a rigid partition and a partition on which the plaster finish is applied to the Red Top Metal Lath Resilient System. It also serves to demonstrate the value of the resilient system for partitions and ceilings in residences, hotels, apartments, schools, offices, etc.

## MAXIMUM PROTECTION AGAINST CRACKS

While metal lath assures crack-resisting plastering construction, it is made still more efficient when attached to the supports by the spring clips used in the resilient system. The spring clips are designed to absorb movement which is apt to occur in the structural framework of a building and prevent an ordinary movement from being transmitted to the plaster finish. The small diagram on page 3 illustrates how 2x4's are permitted to move within the plaster walls they support.

## HOW THE SYSTEM REDUCES TRANSMISSION OF SOUND



## ELIMINATES LATH AND JOIST STREAKS

Another important advantage provided by the Red Top Metal Lath Resilient System is that it eliminates lath and joist streaks. This feature is especially important in air conditioned buildings. Discoloration from treated lumber is also eliminated. The spring clips provide furring for the plaster finish and avoid direct contact with the supports that are responsible for surface marks, etc.

## FIREPROOF

Metal lath covered with three coats of gypsum plaster has been accorded a one hour fire rating by the Underwriters' Laboratories. The resilient system itself is fireproof. All parts of the system are made of steel.

## ECONOMICAL

The only materials used in the Red Top Metal Lath Resilient System that are not used in regular metal lath construction are the resilient clips and the special steel channel studs for partitions. For the small cost of the clips, sound-resistive construction, maximum protection against cracks and elimination of lath and joist streaks and discoloration from treated lumber are provided.

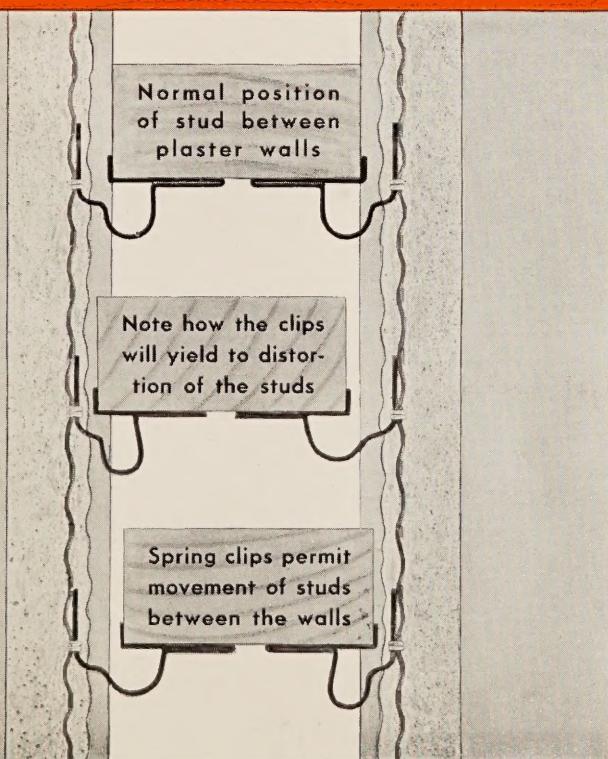
## ADAPTABLE

The Red Top Metal Lath Resilient System can be adapted to practically all types of residential and commercial fireproof and semi-fireproof construction. Except for the attachment of the resilient clips, the application of the system is practically the same as the application of metal lath to rigid supports. The spring clips are designed for quick and easy application. Erection data is given on page six.

## SUSPENDED CEILINGS

In suspended ceiling erection, the resilient clip replaces the tie wire used to tie furring channel to runner channels.

## PLASTER WALLS PROTECTED FROM MOVEMENT OF STUDS AND JOISTS



No other mechanical feature of the ceiling is changed. For the slight extra cost of the clips, a sound-reducing, crack-resisting suspended ceiling construction is possible. A suspended ceiling so erected reduces sound travel between lower and upper floors. The clips provide another feature in the fact that they save erection time.

## WOOD FRAME CONSTRUCTION

In wood frame construction, the Red Top Metal Lath Resilient System provides two important features. First is the advantage of the resilient attachment of the plaster finish. The second is that the metal lath plastering construction provided by the system produces a valuable fire protection to the wood framework which it covers. Resilient clips are available for application on studs, joists, 1"x2" or other furring strips.

## STEEL STUD PARTITIONS

The Red Top Metal Lath Resilient System provides materials for erecting steel stud partitions suited for hotels, apartments, hospitals, schools, offices and similar types of buildings that require highly fire-resistive partitions that reduce sound transmission. Specially designed 1 3/4-inch cold rolled channels are used for the studs. These studs have a turned-back double flange that gives a rigidity equal to a more costly 1 1/2-inch, 1.12-lb. hot rolled channel. Resilient attachment of the metal lath is provided (on both sides of partition), by the spring clips which are easily applied and held in place on the stud by tension. Partitions finish at 4 inches.

## MASONRY SURFACES

The Red Top Metal Lath Resilient System provides an ideal furring and resilient attachment for metal lath on practically all types of masonry surfaces. The clips are easily erected on interior and exterior masonry walls. The clips also are especially well suited for use on ceilings under flat concrete slabs and concrete joist floors. First, much less space is required with them than for standard suspended ceilings. Second, the method is less expensive.

The use of the clips for exterior stucco assures maximum protection against cracking because the clips take up movements that are apt to occur in wood framing.

## RED TOP METAL LATH

The plaster base used in the Red Top Metal Lath Resilient System is Red Top Metal Lath of the type and weight required for the particular type of construction. Red Top Junior Diamond Mesh Lath is recommended where studs, joists, or furring channels are not spaced more than 16 inches on centers. This lath is ideally suited for such use because the sheets can be easily and quickly erected on the clips or the furring channels. When nature of construction requires a rib lath, Red Top 1/8-inch Z-Rib Lath or Red Top 3/8-inch Rib Lath is furnished. Both laths are exceptionally rigid and are ideal for any work requiring an exceptionally rigid lath because of wide spacing of supports, or other reasons.

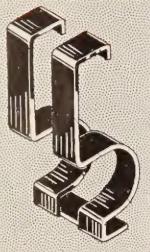
## SOLD BY THE DEALER

All the materials required to erect the Red Top Metal Lath Resilient System are sold as a unit and may be had from dealers in building materials. The materials are illustrated and described on the following page. Quantities of materials required are determined by the method used for a standard metal lath job. The number of clips required can be determined from the construction data on page six. Samples and other data may be had from USG dealers or through the USG Sales Office nearest you.

# USG STEEL PRODUCTS USED IN THE SYSTEM

■ The United States Gypsum Company manufactures the resilient clips, special channel studs, metal lath and other items used in the Red Top Metal Lath Resilient System. These items are illustrated and described below. The detail drawings on the opposite page show the application of the various clips and accessories in the types of general construction to which the system can be adapted. The only materials used in this system that are not used in ordinary metal lath construction are the resilient clips and the special channel studs and stud seats for partitions.

## CLIP NO. 100



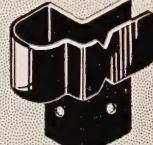
For use on suspended metal lath ceilings. This clip provides a resilient attachment between  $\frac{3}{4}$ " or 1" furring channels and 1½-inch runner channels (either cold rolled or hot rolled channels may be used). Easily installed by slipping over furring channel and hooking over runner channel flange. Made from 18 gauge cold rolled spring steel. Painted black.

## CLIP NO. 200



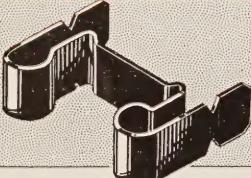
For resilient attachment of metal lath to wood studs and joists. Ample space is provided behind the notches on the tongue of the clip to permit easy application of the lath. When necessary, pencil rods may be used. Made from 20 gauge cold rolled spring steel. Painted black.

## CLIP NO. 300



For resilient attachment of metal lath to 1x2-inch wood furring strips. Can be used as an alternative for Clip No. 200 where nature of construction requires a face nailing clip. Except for the nailing detail, it is identical with No. 200. Made from 20 gauge cold rolled spring steel. Painted black.

## CLIP NO. 400



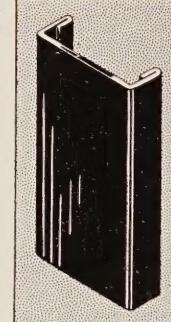
For resilient attachment of metal lath to No. 600 channel stud which was developed for use with this clip for hollow stud partitions. The clips are designed for easy application and provides a tongue on both sides for wiring on the lath. Made from 20 gauge cold rolled spring steel. Painted black.

## CLIP NO. 500



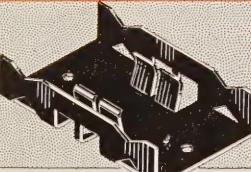
Provides furring and resilient attachment of metal lath on masonry walls, concrete slabs, concrete floor joists, clay or gypsum tile, and similar surfaces.  $\frac{3}{4}$  or 1-inch hot or cold rolled channels are wired to the tongue of the clip. Made from 18 gauge cold rolled spring steel. Painted black.

## CHANNEL STUD NO. 600



A specially designed, 16 gauge, 1½-inch wide, cold rolled channel stud used with No. 700 Stud Seat and Clip No. 400 for hollow stud partitions. Flanges are turned back to double thickness, giving a rigidity equal to a more costly 1½-inch 1.12 lb. hot rolled channel. 10 pes. per bdl.—18 or 20 ft. long. Not painted unless specified.

## STUD SEAT NO. 700



Seat for attaching No. 600 Channel Studs at floors and ceiling for hollow stud partitions. The seat is four inches long and is made from 22-gauge half-hard steel. Nail holes are provided which assure an easy and rapid attachment. Sockets in the seat hold the channel studs securely in place. Painted black.

## RED TOP METAL LATH

Red Top Metal Lath (either Diamond Mesh Lath,  $\frac{1}{8}$ -inch Z-Riblath, or  $\frac{3}{8}$ -inch Riblath, as specified) provides the ideal plastering base for this plastering system. The rigid sheets are easy to erect on the various clips and provides a smooth, firm working base for the plasterer. Weights: standard. Materials: open hearth and copper bearing steel, painted black; galvanized steel and Armco Ingots iron, painted black.



## ACCESSORIES

The following Red Top Lathing Accessories are required in the system. They are regular stock items.

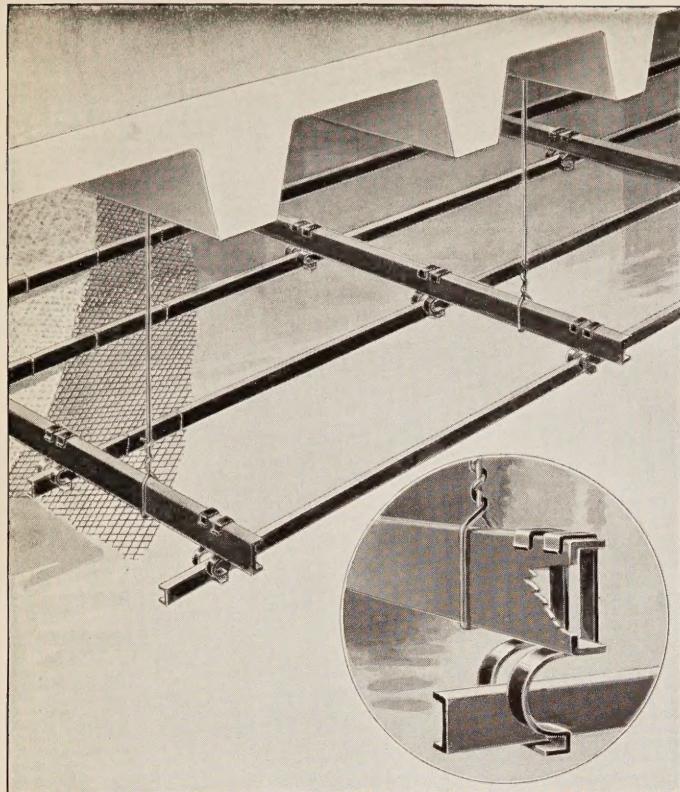
REGULAR COLD ROLLED CHANNELS,  $\frac{3}{4}$ , 1 and 1½ widths and lengths of 14, 16, 18 and 20 feet.

HOT ROLLED CHANNELS,  $\frac{3}{4}$ , 1 and 1½-inch widths weighing .30, .41, and .85, per lineal foot respectively. Lengths 16 and 20 feet.

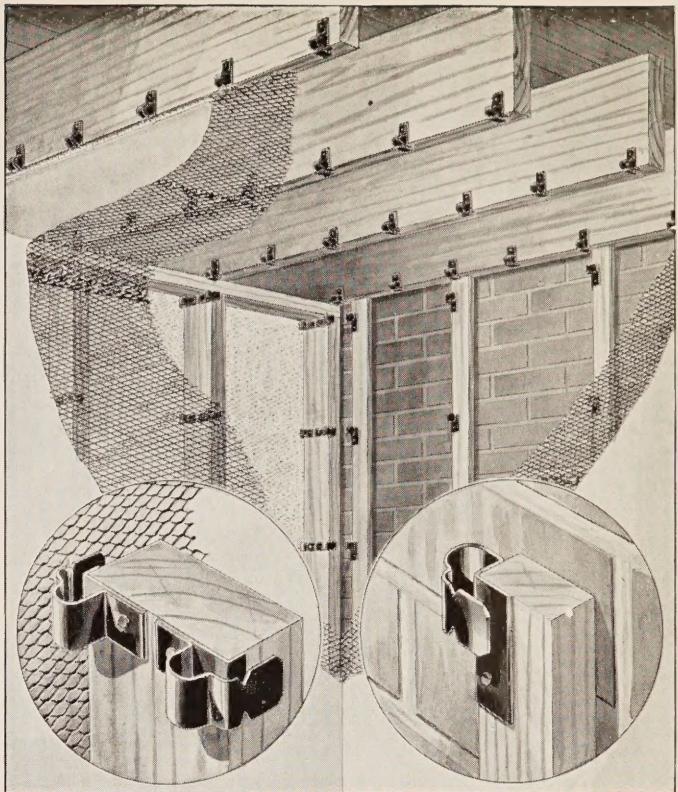
PENCIL RODS. Pliable, mild steel. Used for hangars and metal lath furring.  $\frac{3}{16}$ ,  $\frac{1}{2}$  (5 ga.) and  $\frac{3}{4}$ -inch sizes. 16-foot lengths.

TIE WIRE. Galvanized annealed tie wire of great strength and pliability. 18 gauge. Furnished in 12½-pound stones, 25-pound "cut length" hanks and 50 and 100-pound coils.

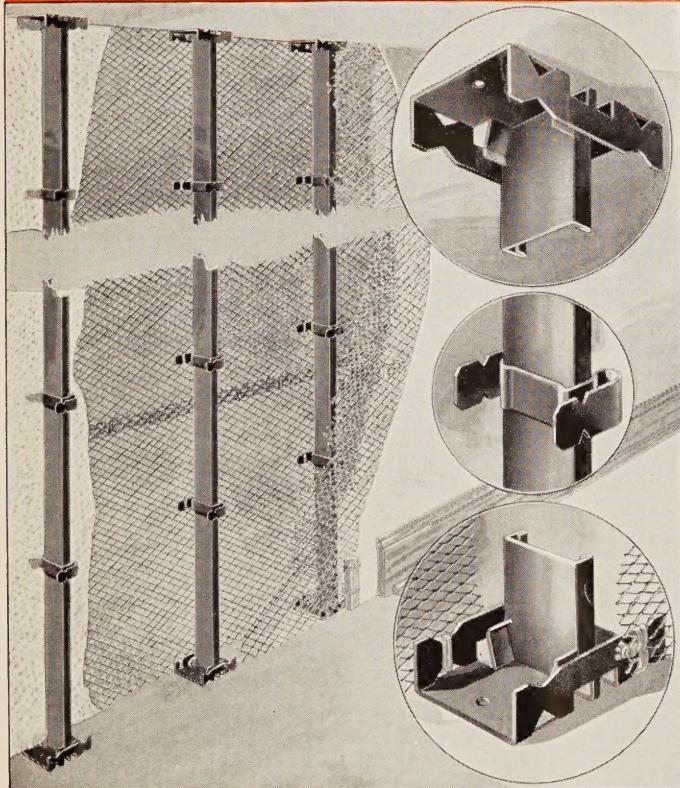
NAILS AND STAPLES. All types of nails and staples required for application of system can be supplied.



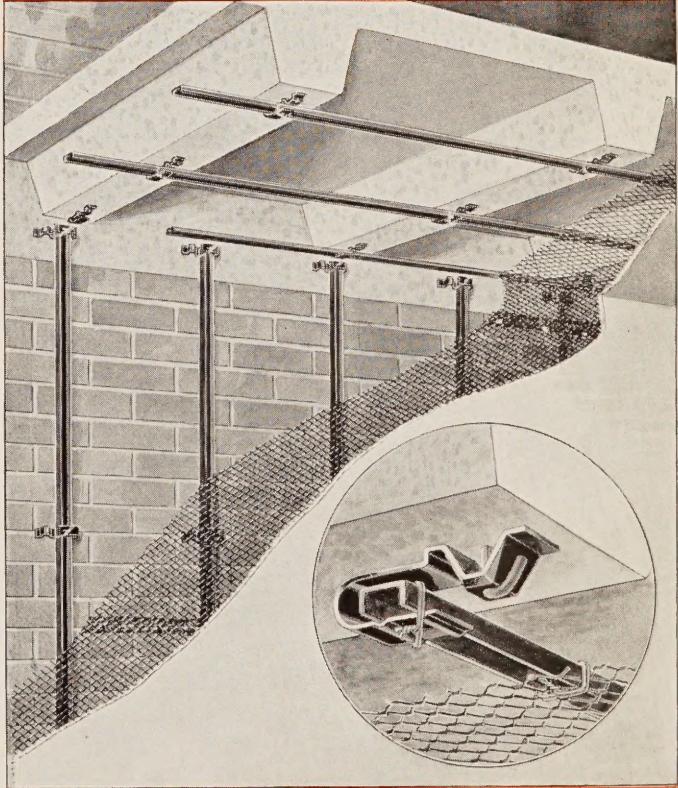
**SUSPENDED CEILING** Showing application of No. 100 Clip for suspended ceiling construction. The clip provides resilient attachment of furring channel to runner channel by replacing use of the tie wire. Easy to erect.



**WOOD FRAME CONSTRUCTION** Showing application of No. 200 Clip on wood studs and joists and No. 300 Clip on wood furring on masonry walls. Clips provide resilient attachment of metal lath and protect plaster finish.



**STEEL STUD PARTITION** Showing erection of No. 600 Channel Stud with No. 700 Stud Seat and No. 400 Clip. Studs are  $1\frac{3}{4}$ " wide with turned back flanges. Studs have a rigidity equal to a  $1\frac{1}{2}$ " 1.12 lb. Hot Rolled Channel.



**MASONRY SURFACES** Showing use of No. 500 Clip on ceiling under concrete joist and on masonry walls. Clip is also used on other masonry surfaces. Provides furring and resilient attachment of metal lath.

# CONSTRUCTION DATA AND RECOMMENDED SPECIFICATIONS FOR ERECTING THE RED TOP METAL LATH RESILIENT SYSTEM

■ Basically, the system consists of attaching metal lath with resilient spring clips to channel or wood studs, or direct to masonry walls or concrete joists. No special framing or equipment is required. There will be a slight increase in thickness of plaster grounds due to the clips furring the metal lath base out from the framework. A total wall thickness, with the customary  $\frac{3}{4}$ -inch plaster, will be increased by approximately  $\frac{3}{8}$ -inch on each side over what it would be without the system.

In applying the system, the clips are nailed or attached to the wood or channel framework, and metal lath of type specified is then attached with tie wire to the clips, or to the channel framework in suspended ceiling construction.

Ceilings should be lathed first and then sidewalls from the top downward. Metal lath at all ceiling and sidewall corners should be bent over and around the corners, so as to effectively tie in the adjoining wall or ceiling. This is important, as otherwise there is danger of expansion cracks at any non-reinforced corners.

Care must be taken to see that all metal lath is securely fastened and stretched tight. When the scratch coat of

plaster is applied, and pressure from the trowel released, the plastered lath will spring back clear of any framework, avoiding any contact.

A very important consideration in the efficiency of this system is the spacing of the clips. They cannot be spaced too far apart or the clips and fastenings will be overloaded. Neither can they be spaced too close together or the plastered surface will lose its resiliency and the sound insulating value will be lowered. Therefore, the spacing of clips should be in accordance with our recommendations for the particular type of construction, as these spacings have proven to be satisfactory. (See table.)

The weights and types of metal lath hereinafter specified are the approved and recommended weights and types for that particular construction. Finishes, i.e., Painted Steel, Copper Bearing, Armeo iron, or galvanized (galvanized in the 2.5-lb. and 3.4-lb. weights) are optional.

## ERCTION SPECIFICATIONS

**SUSPENDED CEILING:** Insert Hanger Rods ( $\frac{1}{4}$ ",  $\frac{3}{16}$ " or  $\frac{7}{32}$ ") through concrete forms of floor above before pouring concrete for attaching runner channels. Hanger rods to be spaced 4'-0" on center in each direction and to extend through (give depth of suspended ceiling drop) plus 12 inches additional for tying runner channels.

$1\frac{1}{2}$ " runner channels (either cold or hot rolled) shall then be attached to hanger rods.  $\frac{3}{4}$ " or 1" furring channels (either cold or hot rolled) are then attached to runner channels by slipping No. 100 clip over the furring channel and hooking it around the  $1\frac{1}{2}$ " runner channel. The upper portion of the clip to pass over the flanges of the  $1\frac{1}{2}$ " runner channel (see detail). Furring channels to be spaced 12" (or 16") on centers. (Do not recommend spacing of greater than 16".)

Red Top Junior Diamond Mesh Lath weighing ( ) per sq. yd. (3.0 lb. for 12" spacing of furring channels—3.4 lb. for 16" spacing) shall then be attached to furring channels by tying with 18 gauge Galvanized Annealed Tie Wire every 8" along the furring channels.

**WOOD STUD AND JOIST:** Wood Studs and Joists are to be spaced 16" on centers. Then starting at the junction of the wall and ceiling attach No. 200 clips with 4d common nail through the nail hole in clip, spacing clips 12" on centers along the studs, and 8" on centers along the ceiling joists. Clips should be securely nailed to eliminate any "play."

Red Top Junior Diamond Mesh Lath weighing 2.5 lb. per sq. yd. (for walls) and 3.0 lb. per sq. yd. (for ceiling) shall then be attached to the clips by wiring with 18 ga. Galvanized Annealed Tie Wire to the tongue of the clip through the notch provided for that purpose. Lath at junction of wall and ceiling shall be bent over from ceiling onto wall. (If desired to use Red Top  $\frac{1}{8}$ " Z-Riblath (Flat Rib) a weight of 3.0 lbs. per sq. yd. will be adequate for both walls and ceilings. For  $\frac{3}{8}$ " Riblath, a weight of 3.0 lbs. per sq. yd. will be adequate for both walls and ceilings.)

(Continued on page eight).

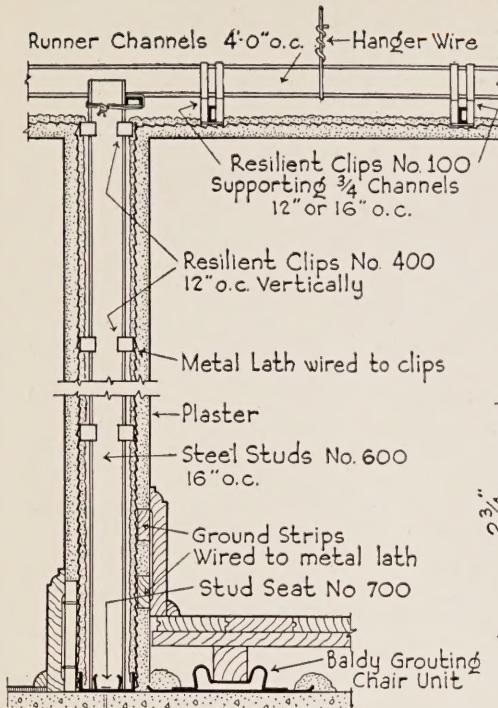
TABLE OF SPACING AND NUMBER OF CLIPS REQUIRED

STYLE OF CLIP AND TYPE OF CONSTRUCTION	SPACING OF CHANNELS AND/OR WOOD STUDS			
	12"	16"	19"	Concrete Joists 25"
NUMBER OF CLIPS PER 100 Sq. Yds.				
NO. 100 CLIPS—Suspended Ceiling (Runner Channels 4'0" on center)	225	169		
NO. 200 CLIPS—2x4 Wood Studs (and Wood Joists)		675* (Clips 12"oc)		
NO. 300 CLIPS—1x2 Wood Furring		675 (Clips 12"oc)		
NO. 400 CLIPS—Channel Stud Partition		675** (Clips 12"oc)		
NO. 500 CLIPS—Furring on Masonry Walls, Concrete Slabs, etc.	400 (Clips 24"oc)	450 (Clips 18"oc)	455 (Clips 15"oc)	432 (Clips 12"oc)
NO. 600 CHANNEL STUDS—16" on centers	338 lin. ft. per 100 sq. yds. of wall surface (676 ft. for both sides).			
NO. 700 CHANNEL STUD SEATS—Both floor and ceiling, with channels—16" on centers	Will be double the number of pieces of channels required.			

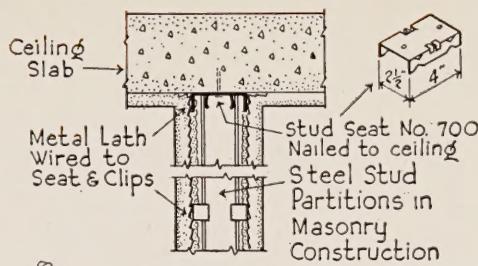
\*900 clips are required for ceilings with clips spaced 8" on centers. If pencil rods are used, clips may then be spaced 12" on centers, and 675 clips required.

\*\*Sufficient for both sides of partition, or 200 sq. yds. of surface.

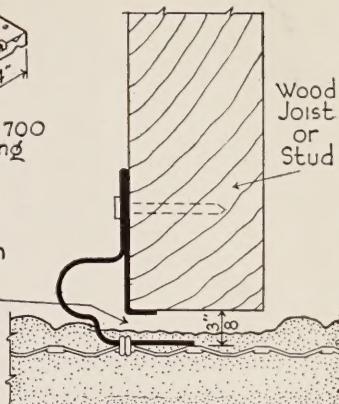
## CONSTRUCTION DETAILS



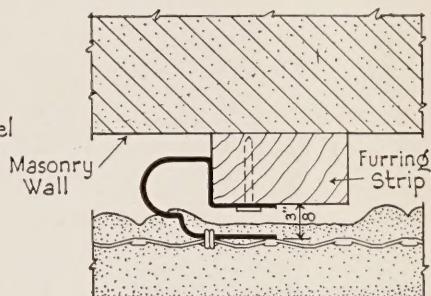
STEEL STUD PARTITION & SUSPENDED CEILING CONST.



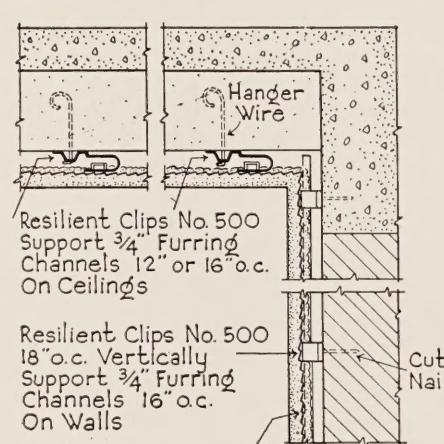
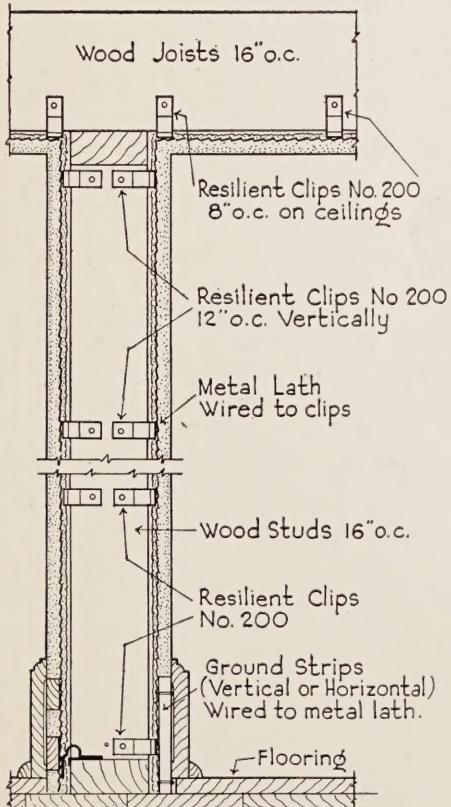
Note Clearance  
Pressure of trowel  
forces lath against  
stud, flattening out  
plaster key. When  
pressure is removed  
clip pulls plaster  
clear of stud.



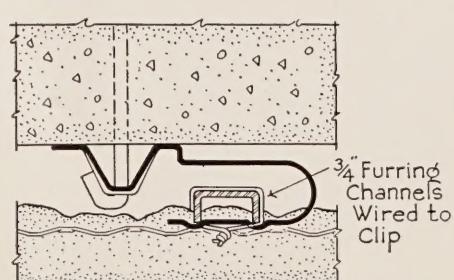
CLIP No. 200  
For Wood Construction



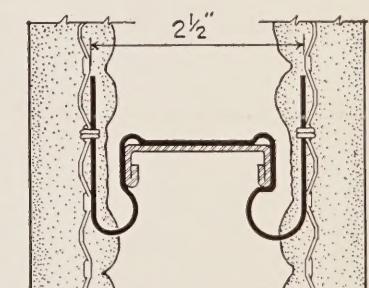
CLIP No. 300  
For Wood Furring on  
Masonry Construction



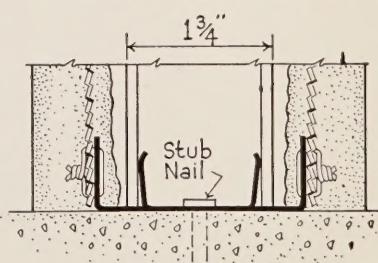
MASONRY CONSTRUCTION



CLIP No. 500  
For Masonry Walls and Ceilings



CLIP No. 400  
STEEL STUD No 600  
For Steel Stud Partitions.



STUD SEAT No. 700  
For Steel Stud Partitions

**Alternate:**—Clips may be spaced 12" along ceiling joists instead of 8" if  $\frac{1}{4}$ " pencil rods are used. Pencil rods may be placed above the wiring tongue, fitting into the radius at the shoulder of the tongue, or may run across the direction of joists and wired to the underside of the tongue. The metal lath is then wired onto the  $\frac{1}{4}$ " pencil rods with 18 ga. Galvanized Annealed Tie Wire at 8" intervals.

**Note:**—If studs and joists are spaced 12" on centers instead of 16", clips may then be spaced 16" along studs, and 12" along ceiling joists if  $\frac{1}{4}$ " pencil rods are used.

**WOOD FURRING ON MASONRY WALLS:** Follow same procedure for Wood Studs (walls only) except No. 300 clips are attached to the 1"x2" wood furring.

**STEEL STUD PARTITION:** Special  $1\frac{3}{4}$ " Channel Stud No. 600 are first set into Stud Seat No. 700, top and bottom, and then set in position spaced 16" on centers. Stud Seats are then nailed to ceiling and floor.

No. 400 clips are then attached to Channel Stud No. 600, spaced 12" on centers along the stud. In attaching the No. 400 clip onto the Channel Studs, the side of the clip having the deep throat should be put on and over the flange of the Channel Stud first, and then the other side of the clip having the shallow throat can be snapped into place.

Red Top Junior Diamond Mesh Lath weighing 2.5 lb. per sq. yd. is then attached to the clips by wiring

with 18 ga. Galvanized Annealed Tie Wire to the tongue of the clips through the notch provided for that purpose.

**MASONRY WALLS, CONCRETE JOISTS, ETC.:**

No. 500 clips are securely attached to (brick and clay walls with 10d cut nails), (Pyrobar walls with 2" staples), (concrete slabs or joists by a No. 9 ga. wire or a 10d hook head nail which has been placed in position before pouring concrete—and extending  $1\frac{1}{4}$ " below concrete surface). Holes are provided in the clips for this purpose, and care should be taken to see that all clips are securely and tightly fastened, and free from any loose action.

Spacing of the No. 500 clips along walls (or flat concrete slabs) shall be 24" on centers for a 12" spacing of furring channels (18" on centers for a 16" spacing of channels), (15" on centers for a 19" spacing of channels). Spacing on concrete joists (joists 24" to  $26\frac{1}{2}$ " on centers) shall be 12" along the joists.

$\frac{3}{4}$ " (or 1") furring channels (either cold or hot rolled) are to be attached on top of (or inside of) the tongue of the clip and wired in place through the notches of the tongue with a double strand of 18 ga. Galvanized Annealed Tie Wire. Furring channels are to be supported flat (not on edge) with flange down in the case of ceiling, or turned out from walls in the case of walls.

Red Top Metal Lath (of weight and type suitable for the spacing of channels) is then attached to the furring channels with 18 ga. Galvanized Annealed Tie Wire at 8" intervals.

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MANUFACTURED BY

UNITED STATES GYPSUM COMPANY  
STEEL PRODUCTS DIVISION  CHICAGO

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SALES OFFICES

Atlanta, Ga.,	Citizens and Southern Bank Bldg.
Charlestown, Mass. (Boston)	Mystic Wharf
Buffalo, N. Y.	514 Brisbane Bldg.
Chicago, Ill.	300 West Adams St.
Cincinnati, Ohio	506 Builders Bldg.
Cleveland, Ohio	817 Hanna Bldg.
Dallas, Tex.	1105 Santa Fe Bldg.
Denver, Colo.	830 Continental Oil Bldg.
Detroit, Mich.	River Rouge, Mich.
Indianapolis, Ind.,	Architects and Builders Bldg.
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St. Louis, Mo.	808 Louderman Bldg.
San Francisco, Cal.	2501 Harrison Street
Washington, D. C.	15th and K Streets, N.W.